

work, have returned on board the *Morning*. Lieutenant Mulock has replaced Lieutenant Shackleton, who is invalided.

The sledge journey of Captain Scott, Dr. Wilson, and Lieutenant Shackleton, which resulted in the farthest point south being reached, took ninety-four days.

After the explorers had left a dépôt which had been previously established sixty miles south of the ship, the snow became soft, and it was almost impossible to drag the sledges along. Half of the sledges had to be hauled five miles, and then the party returned and brought up the remainder, each five miles covered thus involving fifteen miles of travelling. This relay work lasted twenty-nine days.

The explorers established a dépôt in latitude $80^{\circ} 30'$ south, and then discarded all superfluous gear, and set out on December 15 for a dash to the south. On January 1 they reached latitude $82^{\circ} 17'$ south. The southernmost dépôt was regained on January 15, and the ship on February 3.

Lieutenant Armitage, second in command, on a sledge journey which he made to the westward, and which lasted fifty-two days, attained an altitude of 9000 feet. The party descended an ice slide to a glacier 3000 feet below. At one point of the journey they slid a distance of 1300 feet in one minute ten seconds, hanging by straps to the backs of the sledges. On the return journey Lieutenant Armitage fell into a crevasse and hung thirty feet below the surface. If he had not been harnessed to the others he would have fallen a depth of 2000 feet. In some places the sledges had to be lowered fifty feet, and then hauled up on the other side.

Captain Colbeck's opinion as to the *Discovery's* chances of getting clear of the ice is somewhat difficult to understand, as the *Morning* transferred a large quantity of stores to the *Discovery*, and had apparently no difficulty in getting out again, while it may be supposed that Commander Scott's decision to remain for another winter was made deliberately in pursuance of his original intention to spend two winters in the Antarctic regions. Further details will be awaited with great interest; the situation of the *Discovery*, as well as the statement in the last paragraph of the official report, emphasise the soundness of the policy which led to the dispatch of a relief vessel.

Even with the meagre information to hand, it is abundantly evident that the National Antarctic Expedition has already achieved a great success, both in the way of exploration and of scientific observation. The "record" for south latitude has been "broken" by one hundred miles, and, what is more important, an unknown mountain region, extending to at least $83^{\circ} 20'$ S. lat., has been discovered, suggesting, as Sir Clements Markham has remarked, that "land stretches to the Pole in a series of lofty mountains." The fact that the *Discovery* wintered at a point four hundred miles further south than any former expedition encourages the belief that her observations will be of real value to science—solving some of the crucial problems of terrestrial physics. Even greater results may be expected from the work still to be done, for Commander Scott and his comrades have the experience of one successful year to help them.

The success of the British expedition makes us look forward with the more interest to news from the German and Swedish expeditions, which are working in the "Weddell" and "Enderby" quadrants, and from which we may hear at any time. The Scottish Antarctic expedition will probably not be heard from for a year, as the *Scotia* only left the Falkland Islands on January 22, 1903, and Mr. Bruce, who is in command, has materially altered his plans, as appears from the following letter which he has sent to Reuter's Agency:—

"In a few hours we take our departure for the south. Contrary to my previous intention, I am going to winter the ship if we find a suitable winter harbour, for, on account of the lateness of the season, there will not be time to set

up a separate house and set the ship free. We had a most successful passage south, having accomplished the voyage in fifty-nine days, in contrast to ninety-two days that we took in the *Balaena* in 1892. Systematic hydrometer observations and temperature observations of the surface of the sea from 30° N. have been taken, and those of the River Plate should prove of exceptional interest, since there are most remarkable and rapid changes both in density and temperature associated with strong currents. We have inspected and set up the meteorological station at Cape Pembroke, which should be as good as any in the Southern Hemisphere. This should form a very important sub-Antarctic station. We have sufficient funds to enable us to do this one year's work in the south. Now that we are on a solid basis it would be a great pity to come home before our work is really complete. A second winter, during which the ship could be kept going free, as well as the station, would be most valuable."

NOTES.

THE presidents of the sections of the British Association, for the meeting to be opened at Southport on September 9, are as follows:—*Mathematical and Physical Science*, Mr. C. V. Boys, F.R.S. (Chairman of Department for Astronomy and Meteorology, Dr. W. N. Shaw, F.R.S.); *Chemistry*, Prof. W. N. Hartley, F.R.S.; *Geology*, Prof. W. W. Watts; *Zoology*, Prof. S. J. Hickson, F.R.S.; *Geography*, Captain Ettrick W. Creak, C.B., F.R.S.; *Economic Science and Statistics*, Mr. E. W. Brabrook, C.B.; *Engineering*, Mr. C. Hawksley; *Anthropology*, Prof. J. Symington; *Botany*, Mr. A. C. Seward, F.R.S.; *Educational Science*, Sir William de W. Abney, K.C.B., F.R.S. On Friday, September 11, a discourse on "Man as Artist and Sportsman in the Palæolithic Period" will be delivered by Dr. Robert Munro, and on Monday, September 14, Dr. Arthur Rowe will lecture on "The Old Chalk Sea, and some of its Teachings."

THE *Times* of Monday contained in its latest intelligence columns two telegrams from the United States, one dated March 28 and the other March 29, both of which had been transmitted "By Marconigraph." This starts, as the *Times* says in a leader, a day-by-day transmission of news between the New and the Old World, undertaken on a contract basis, and thus distinctly marks a step forward in the development of wireless telegraphy. Mr. Cuthbert Hall stated to a representative of the *Westminster Gazette* that until the Post Office has granted the land connection for which the Wireless Co. ask (which has been granted in Canada and the United States), it is impossible to extend generally to the public and the Press the facilities afforded to the *Times*. Nevertheless, Transatlantic wireless telegraphy may now be considered on a practical commercial footing, since it is evident that the Marconi Co., and the *Times* also, feel confident of its trustworthiness if they make it the basis of an arrangement of this kind. We offer our sincere congratulations to Mr. Marconi on this advance. We have frequently commented in these columns on the extreme rapidity with which the practical development of wireless telegraphy has progressed in Mr. Marconi's hands; the present occasion affords another instance in point. There is pleasure in the remembrance of the part which pure science has played in leading to this development.

THE following have been elected fellows of the British Academy:—Dr. B. Bosanquet, Prof. E. G. Browne, Mr. Arthur Cohen, K.C., Mr. F. C. Conybeare, Prof. F. Y. Edgeworth, Dr. C. H. Firth, Prof. A. Campbell Fraser, Sir Edward Fry, Dr. F. J. Furnivall, Prof. P. Gardner, Dr. Henry Jackson, Dr. M. R. James, Dr. F. G. Kenyon,

Prof. W. P. Ker, Lord Lindley, Sir A. Lyall, Prof. W. R. Morfill, Dr. A. S. Murray, Prof. J. S. Nicholson, Dr. G. W. Prothero, the Very Rev. Dr. J. Armitage Robinson (Dean of Westminster), Dr. G. F. Stout. The number of the fellows is thus raised from forty-eight to seventy.

THE complimentary banquet given to Sir William White on Thursday last, March 26, by the presidents, vice-presidents, and members of council of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Electrical Engineers, the Institution of Naval Architects, and the Iron and Steel Institute was a function to which we refer with pleasure. The leading representatives of engineering science and practice in this country were present, and the assembly showed the high appreciation in which the work Sir William White has done for the country and the Navy is held by those who are best able to judge its value. It is not often that five scientific or engineering societies unite to do honour to one of their members in this way, but the example might well be followed more frequently. Men who have devoted their lives to the progress of pure and applied science ought to be made to feel that their fellow-workers respect and admire their labours. The public recognition of Sir William White's services on Thursday last has therefore been noticed with satisfaction by many who were not present at the banquet.

DURING the past week the British Islands have been visited by a succession of the barometric depressions which have been prevalent for some weeks, and have occasioned a persistent continuance of mild south-westerly winds, with day and night temperatures considerably above the average. On Wednesday, March 25, the Metropolis and southern parts of England experienced thunderstorms, and thunder and lightning occurred on succeeding days in various parts of the country. At Greenwich a temperature of 68° in the shade was recorded, which is the highest registered in March since 1894, and the reports issued by the Meteorological Office show that the temperature reached 65° at Oxford, 70° at Paris, and 81° at Biarritz. A peculiar feature of this abnormal temperature was that the highest readings occurred during the evening; a correspondent at Cambridge writes that he recorded 63° at 7h. 30m. p.m. In the neighbourhood of London, a reading of 68° was recorded at 8h. p.m.; this temperature is about 27° above the average, and fully 5° above the average evening summer readings. The clouds bore a somewhat unusual appearance, known as *mammato-cumulus*, or festoon-clouds.

THE following are among the lecture arrangements at the Royal Institution after Easter:—Prof. Allan Macfadyen, three lectures on the blood and some of its problems; Prof. G. H. Darwin, two lectures on the astronomical influence of the tides (the Tyndall lectures); Prof. E. J. Garwood, two lectures on the work of ice as a geological agent; Prof. Dewar, three lectures on hydrogen: gaseous, liquid and solid; Prof. S. H. Vines, two lectures on proteid-digestion in plants; Prof. J. A. Fleming, two lectures on electric resonance and wireless telegraphy; and Prof. S. P. Thompson, two lectures on the "De Magnete" and its author, (1) the book, (2) the man. The Friday evening meetings will be resumed on April 24, when a discourse will be given by the Hon. R. J. Strutt on some recent investigations on electrical conduction; succeeding discourses will probably be given by Prof. William J. Pope, Dr. D. H. Scott, the Prince of Monaco, and others.

THE Italian Senate has approved a Bill for the construction of a powerful radiographic station on the Marconi system.

IN the House of Commons on Monday, Sir J. Leng asked the Postmaster-General whether, in view of the fact that the Admiralty have come to an arrangement for the adoption of Marconi's system of wireless telegraphy, he would state what hindrance there is, if any, to the Telegraph Department giving the same facilities for transmitting Marconigrams over the public wires as are given to the cable companies, and can he state the present position of the negotiations. In reply Mr. Austen Chamberlain said: "I am prepared, on proof to my satisfaction that the company are in a position to deal satisfactorily with the business handed to them, subject to their compliance with certain conditions required in the public interest, to give them the necessary facilities for the transmission of telegrams to and from Poldhu station. I am in communication with the company and other departments on the subject."

THE electrification of the Lancashire and Yorkshire Railway between Liverpool and Southport is nearly finished, and the lines will be opened on the new system during the present year. Thirty-two miles of feeders, which are to be worked at a pressure of 10,000 volts, have been made by Messrs. Glover, of Manchester, and have just passed the factory tests at 60,000 volts. Messrs. Dick, Kerr and Co. are the engineers for the work.

THE first two trains constructed for the electrification of the Metropolitan District Railway have been delivered at South Harrow, and are being fitted with their electrical equipment. The new line from South Harrow to Ealing is being used experimentally for trial runs and so forth, power being supplied by a small station which has been specially built. The cars of the new trains are built somewhat on the same lines as those of the Central London Railway, the seats being along the sides instead of transversal. Electrical heating apparatus is installed beneath the seats. A train will be made up of seven cars, three of which, the two end ones and the middle, will be motor cars; this arrangement allows the trains to be divided into smaller units at periods of light traffic. Each car has a seating capacity of fifty, so that a complete train will carry 350 passengers in comfort, and probably as many again during busy hours, standing along the central gangway. At present no distinction of class has been made, and it is said that the company proposes to fix a uniform rate of 2½d. for any distance. The large generating station in Chelsea is as yet by no means finished, so it will probably be some time before the electrification is completed.

PROF. FLEMING, in his final lecture on wireless telegraphy at the Society of Arts last week, dealt with the question of interception of messages, and recounted the results of some experiments he had made the week before at Poldhu. Two series of messages were sent out from Poldhu, the one from the large aerial used in Transatlantic signalling, and the other from a small mast used for short distance experimental work. Some of the messages were in cipher, and they were all secret, being known only to Prof. Fleming; they were transmitted simultaneously, and received at the station at the Lizard, where there were two receiving circuits, one tuned to the large and the other to the small aerial. The messages were sorted out perfectly and printed on separate Morse tapes. The remainder of the lecture was devoted to a comparison between the Marconi and other syntonistic systems, and to a consideration of some of the unsolved problems of wireless telegraphy. The lecturer pointed out that one fault of the receiving apparatus lay in the fact that it was unable to indicate the direction from which the received radiations were coming, or to give any gauge of its distance, thus making it impossible to localise the source.

THE report of Marconi's Wireless Telegraph Co., Ltd., which has just been issued, contains some interesting particulars of the work that has been done. The list of stations which have been erected, including Lloyd's stations, contains twenty-five names; three of these are the Transatlantic stations at Poldhu, Cape Breton and Cape Cod; of the rest eight are in England, four each in Ireland and the United States, two each in Canada and Germany, and one each in the Isle of Wight and Belgium. With reference to the Navy, it is stated that thirty-two ships have already been equipped, and arrangements have been made by which the use of wireless telegraphy in the Navy will be greatly extended. The subsidiary company, the Marconi International Marine Communication Co., Ltd., is able to report satisfactory progress; seven lines of steamships are using the system, the total number of ships so far equipped being thirty-one. The report also contains a number of details concerning the work which has been done by the Company and its offshoots in Italy, France, Germany, Belgium, the United States, Canada and other countries.

Two reports referring to disturbances of the earth's crust have appeared since we went to press last week. They are as follows:—*Naples*, March 27. The activity of Vesuvius is again increasing. Explosions occur with frequency, and rumblings are heard. *Jerusalem*, March 30. A shock of earthquake occurred last night, at 12.35, throwing the entire population into a state of great excitement.

THE Board of Trade has received information, through the Colonial Office, that a uniform time, based on the 30th meridian, or two hours east of Greenwich, has been adopted by all the South African Governments with the exception of that of German South-West Africa. It is announced on the same authority that on February 28, at 11.30 p.m., the time was advanced to midnight in the Transvaal, and that similar steps were taken in the other South African colonies, except Natal, where no change was necessary.

A FEW details referring to the earthquake in the midland counties on March 24 (see p. 491) have reached us from correspondents. Mr. F. W. Shurlock says that at Derby a double shock occurred about 1.29 p.m., the two shocks being separated by a few seconds only, but no shock was felt at 1.10 p.m. At the Harris Institute, Preston, Mr. J. Harrison noticed a vibration of the building at about 1.32 p.m., and it was remarked that the suspended electric lamps were set swinging by the movement. Mr. W. French noticed a peculiar shaking of the floor of a room at Lancaster at about 1.30 p.m., and remarked that it was an earth tremor. A correspondent, writing from Rock Ferry, says there were three distinct shocks, the second being of a compound character. "There were about three principal movements in this middle shock, the first being most, and the last least, pronounced; but I could also distinguish in addition to this rolling a pitching motion at right angles to it, and a combination of the two, the greatest dip of the pitch being towards the N.E. Of the other two quakes the first had one chief motion towards the S.E., and the last had one similar but of less force, and then slight pitching which gradually died away. There was no noise, and the time the earthquake lasted appears to me to be longer than that given in the accounts I have seen." Prof. E. Wiechert records in the *Daily Mail* that the earthquake was registered by a seismograph at Göttingen.

THE death is announced of Dr. Gustav F. R. von Radde, who was born at Danzig on November 27, 1831, and distinguished himself as a naturalist. From the *Times* we

learn that in 1855 he was called to St. Petersburg by the Russian Imperial Geographical Society, which was dispatching an important expedition to Eastern Siberia and Kamtchatka, to which he was attached. It extended over five years, and at the request of Count Muravieff, the then Governor General of Siberia, von Radde founded a Cossack settlement, which was named Raddowka after him, and is one of the most flourishing settlements in those parts. For the reports which he published on his travels the Russian Academy of Science awarded him the Demidoff prize, and published them at its own expense. In 1863 he accepted a call to the Caucasus and went to Tiflis. There he founded a Caucasian museum of natural history, ethnography, and archæology, of which he was made the director, a post he held until his death. He was able, nevertheless, to undertake many other scientific journeys, not only in Caucasasia, but in Transcaspia and along the whole borderland of Russia in Asia, as well as in other parts of the East, which resulted in many very valuable contributions to the scientific literature of the day.

THE Royal Academy of Sciences of Turin offers the following prizes:—The Bressa prize of 9600 lire for the most valuable discovery made by an Italian in the period 1901–1904, in a large number of various specified departments covering a very extended portion of the domain of science. Two prizes of 30,000 lire, both open to foreigners, are offered, one for the best printed work on Latin literature, published in 1903–1906, the other for the most valuable work on any of the physical sciences printed in 1907–1910. Finally, a prize of 2500 lire, founded by Gautieri, is offered for the best work on philosophy, including the history of philosophy, published in 1900–1902.

THE Royal Meteorological Institute of the Netherlands has published its fifty-third year-book, containing observations and results for 1901. For the last few years the value of this publication has been much enhanced by its conformity to the scheme adopted by the International Meteorological Committee. Hourly observations are published for four stations, tri-daily observations and monthly and annual summaries for a number of other stations, and rainfall values for 106 stations. An appendix gives an interesting account of the storm-warning service; 74.5 per cent. of the warnings issued met with complete success, and 15 per cent. with partial success. Recognition is made of the value of special warning messages received from the English Meteorological Office.

WE have received from the president of the International Aëronautical Committee a preliminary report upon the balloon and kite ascents made in Europe and the United States on the morning of February 5. The space at our disposal will only allow of reference to the most noteworthy altitudes attained by the registering balloons. At Trappes the register recorded a height of 15,700 metres; the minimum temperature, $-59^{\circ}8$ C., was registered at 10,940 metres. The reading on the ground was $5^{\circ}4$; at 1850 metres there was an inversion, $1^{\circ}8$. At Itteville the greatest height was 15,020 metres, minimum temperature $-61^{\circ}2$ at 11,650 metres, temperature on the ground 5° , inversion $0^{\circ}6$ at 1880 metres. At Strassburg the low temperature of $-66^{\circ}0$ was recorded at 12,500 metres, reading at starting 0° ; two inversions were shown, $2^{\circ}4$ at 300 metres and $6^{\circ}4$ at 1400 metres. A second balloon recorded $-62^{\circ}0$ at 12,100 metres, inversion $5^{\circ}5$ at 1850 metres. These ascents were made in an area of high barometric pressure.

THE annual meeting of the Scottish Meteorological Society was held on March 25. The report of the council, presented

to the meeting, states that Sir Arthur Mitchell has resigned the office of honorary secretary, and has been succeeded by Mr. R. T. Omond. The council also reports that the work at the two Ben Nevis observatories has gone on satisfactorily. The arrangements for resuming the observations during the summer at the half-way station (2200 feet) were carried out in August last. A very complete series of observations was obtained, both at the half-way station, and also for part of the time at three other intermediate stations. Dr. Buchan has been chiefly occupied with a continuation of the discussion of the hourly observations of pressure, temperature, humidity, rainfall, and sunshine, with their inter-relations, at the Ben Nevis and Fort William observatories from 1890 to 1902. As regards the temperature and pressure inter-relations, the "constants" have now been determined for all temperature differences, for differences of 12°C or less, and for differences of 18°C or more. The relations which the results bear to the cyclones and anticyclones of north-western Europe have been pointed out. A beginning has been made with a discussion on the hourly hygrometric differences. The relations of the various hourly and daily differences thus ascertained to weather changes are also in course of examination.

PROF. T. D. A. COCKERELL, of the New Mexico Normal University, East Las Vegas, writes concerning the advantages of the wall museums which he has used in the department of biology under his care. The cases are shallow, and consist of frame and back of wood, and a glass front screwed down tightly so as to keep out dust. Wall museums of this kind occupy no space needed for other purposes, and can be placed in any rooms continually used by students. A similar plan has been advocated by some teachers in this country, who will be glad to hear of the success which Prof. Cockerell has found to attend the employment of wall cases in his biological instruction.

To be able to attach, by means of an adapter, a telephoto lens to the objective of one's camera is a desideratum which will be appreciated by many photographers. Such an acquisition has recently been placed on the market by Messrs. J. H. Dallmeyer, Ltd., in the form of "the Adon" lens, which is a very compact, light and well-finished article. It is mounted in aluminium, has a rack and pinion adjustment, and an adapter for mounting it on other lenses, or a flange for using it by itself, and an iris diaphragm, the whole of which is contained in a neat leather case. The system itself is composed of two achromatic combinations, the front being a positive lens of focal length $4\frac{1}{2}$ inches, and the back a negative lens $2\frac{1}{4}$ inches in focal length. The focusing is manipulated by the rack and pinion, thus obviating the necessity of altering the extension of the camera. When used in front of an ordinary lens, there is a limit to the magnification obtainable, but by itself it has no such limitation; in the first case magnification from 2 to $2\frac{1}{2}$ diameters can be secured. The illustrations contained in the booklet which describes the methods of use and results obtained with this lens show specimens of the kind of work that can be accomplished, and speak well for the definition of the combination.

MR. F. E. IVES has described in the *Journal of the Franklin Institute* a very simple way of measuring objects under the microscope by projecting an image of an illuminated scale—a jeweller's saw was used—on the plane of the object by means of the substage condenser.

THE unfortunate controversy that has arisen between Major Ross and Prof. Grassi regarding the discovery of the mosquito phase of the malaria parasite continues, and

a lengthy pamphlet dealing with the whole matter has been issued by the last named. To an impartial observer, it would seem that the credit of the discovery must undoubtedly be given to Major Ross, but that a vast amount of detail as to the exact metamorphoses undergone by the parasite and the elucidation of the species of mosquito concerned have been contributed by Prof. Grassi.

As is well known, a high body temperature is incompatible with life, and when it rises to about nine degrees above the normal (from 98°F to 107°F), and continues at this for any length of time death ensues. Drs. Halliburton and Mott show that this temperature coincides with the coagulation of one of the proteids, cell-globulin, of the cells of the nerve-centres, and probably of other cells of the body, and suggest, therefore, that the physico-chemical cause of death from hyperpyrexia is the coagulation of cell-globulin.

It is announced that commencing with the current volume, the *Physical Review* will be conducted with the cooperation of the American Physical Society, and the proceedings of the Society will be published in the *Review* instead of in the *Bulletin* previously issued.

PROF. LUIGI SALA publishes in the Lombardy *Rendiconti* an account of the work of Giovanni Zola, professor of anatomy in the University of Pavia, who died on December 15, 1899. Prof. Zola was the author of more than seventy writings dealing with anatomy, his largest work being his description of the museum of human anatomy at Pavia. He was also one of the founders, in 1879, of the *Bollettino scientifico*, which he edited jointly with Profs. A. de Giovanni, of Padua, and Leopoldo Maggi, of Pavia.

IN a note contributed to the *Physical Review* on the dimensions of large inductance coils, Mr. James E. Ives gives numerical results showing that a coil of maximum inductance must have a square cross section, that the inductance of a coil with given length of wire increases rapidly as the mean radius is increased up to the maximum inductance, and then decreases slowly, and that for coils of maximum inductance the inductance increases rapidly as the length of wire increases, but not quite proportionately to the square of the length. The second conclusion shows that it is better to make the mean radius too large than too small.

IN certain notes on the anatomy of the 9-banded armadillo (*Tatusia novemcincta*), published in vol. xvii. of *Mem. Soc. Antonio-Alzate*, Dr. Duges alludes to the animal under the name of *Cachicama novemcincta*. We have been unable to find that generic term in any list, and if the author intends it to supersede *Tatusia* (or *Tatu*, as some would have it), this should have been definitely stated.

IN continuation of previous articles on exterminated animals, Mr. G. Renshaw, in the March number of the *Zoologist*, publishes one on the black emeu (*Dromaeus ater*), of Kangaroo Island, which was exterminated by a squatter some time during the last century. A stuffed specimen in the Paris Museum is the only complete skin of this bird known to exist.

MUCH interest attaches to an article by Mr. E. C. Case in the February number of the *American Naturalist* on the "Pelycosaurian" reptiles of the Permian and Triassic formations of North America. These reptiles were near relatives of the anomodonts (theriodonts and dicynodonts) of the Trias of South Africa and other countries of the Old World. The author now finds that the American forms, in the retention of two temporal arcades to the skull, display affinities to the tuatera (*Rhynchocephalia*) which are lost in their African allies, the two temporal arcades having in these

latter more or less completely coalesced. We have thus further evidence of the derivation of mammals, firstly through forms allied to the American pelycosaurians, and then through the Old World theriodonts, from the primitive rhynchocephalian type.

MR. F. FINN has sent us a copy of a paper on variation in birds, reprinted from the *Journal* of the Asiatic Society of Bengal. Among the abnormalities is a five-toed quail; while colour-variations are well illustrated by a plate showing three different phases in the pintail snipe. As regards variation under domestication, the author believes this to be due to conditions favouring the preservation of abnormal individuals rather than to an inherent tendency to vary. Neither, he believes, is climate directly conducive to variation. The coarse and heavy body form noticeable in so many domesticated birds, especially waterfowl, appears to be due to the aggregate result of small tendencies in this direction, which, in the wild state, would have been soon eliminated. Possibly the ultra development of fleshy structures, such as combs and wattles, among many domesticated birds is due to this tendency towards a coarse and heavy habit.

THE investigations of Prof. Vines upon the nature of ferments in plants which act upon proteids—on which subject a second paper appears in the *Annals of Botany*—suggest that these are of two kinds. The ferment found in seeds and fruits, notably pineapples and figs, or other storage organs, can break down the more complex proteids, but the digestive substance detected in many leaves, stems and roots can only act upon simpler proteid bodies; this may correspond to the ferment termed *erepsin*, which has been discovered in the small intestine of animals.

INFORMATION from the neighbourhood of Newfoundland and Nova Scotia indicates that this is likely to be a great ice season. Before the end of February vessels were already being seriously delayed by extensive ice-fields and floes, and scores of large bergs. In some cases it has been necessary to steam southward for many hours to get clear of the danger. The bergs are met with well to the eastward of the Newfoundland bank, and it will not be surprising if they drift as far as the 40th meridian, or even to 35° W., judging by the welling-up, thus far to the eastward, of the very cold water of an under current which probably comes from the ice region. Round 50° N., 35° W., in December and January last, such exceptionally low sea temperatures as 32° to 40° were observed.

Dust storms and ice are amongst the interesting features of the Meteorological Office pilot chart for the month of April. It is now a comparatively easy matter to explain the fall of dust which was so generally observed over the south of England and in many Continental countries, from the Bay of Biscay to Austria, on February 22–23 last. The meteorological logs from various ships show that since the middle of December immense quantities of sand have been borne by the African harmattan wind over the Gulf of Guinea and out on the Atlantic to about 30° W. longitude. At first the phenomenon was limited to the tropical region, but in February, when we had such a remarkably persistent southerly to south-westerly wind in the British Isles, the north-east trade was displaced by a south-easterly to south-westerly breeze, at least down to the latitude of 13° N. The dust was therefore carried northward by this current, and there are a number of records of falls in various latitudes. On February 21, the day before the fall in Europe, a fine, light reddish dust was deposited on a ship in 40° N., 23½° W., the dust coming up from south-south-west or

south-west. There seems to be sufficient evidence available to negative the theory that the dust falls had their origin in the West Indian volcanic outbursts of last year.

MESSRS. CHARLES GRIFFIN AND CO., LTD., have reissued at 6s. net the third edition of "A Short Manual of Inorganic Chemistry," by Dr. A. Dupré, F.R.S., and Dr. H. W. Hake.

AN eighteenth edition of Trautwine's "Civil Engineer's Pocket-Book" has been published by Messrs. John Wiley and Sons in New York, and Messrs. Chapman and Hall in this country. The new edition is larger by about 100 pages than its recent predecessors. Numerous new articles have been introduced, and about twenty others have been rewritten. It is thirty years since the first edition of the pocket-book appeared, and in its new form it should have another long lease of life.

THE second part of the second German edition of Prof. J. H. van 't Hoff's "Vorlesungen über theoretische und physikalische Chemie" has been published by Messrs. F. Vieweg and Son, Brunswick. It will be remembered that the work is based upon lectures delivered in the University of Berlin, and contains a clear and concise statement of the principles of physical chemistry. The first part deals with chemical dynamics, and the part before us is concerned with chemical statics. The price of this part is four marks.

THE *Berichte* for March 7 contains a very striking paper by Messrs. Bamberger and Seligman on the tertiary nitroso-paraffins. The three compounds described are blue when in a monomolecular state, but, like nitrogen peroxide, readily polymerise to colourless bimolecular compounds. Thus the blue ethereal solutions deposit colourless crystals, and the evaporation of the last trace of ether is accompanied by an abrupt bleaching of the whole mass. The change is, however, by no means instantaneous, and a solution of the white polymer only gradually develops the normal blue tint. By determining at intervals of a few minutes the freezing point of a freshly-prepared solution in benzene, the gradual course of the depolymerisation was followed, and it was found that the decrease of molecular weight, which continued during four hours, exactly corresponded with the development of the blue colour. Depolymerisation takes place most rapidly when the compounds are dissolved in chloroform or benzene, and least rapidly when oxygenated solvents such as ethyl acetate or acetic acid are used. Aqueous solutions become blue very slowly, and even on heating to the boiling point the development of colour is not instantaneous. These results are directly contrary to what has previously been observed with reference to the influence of solvents on the velocity of chemical change, and further investigations should yield important results. The contrast with nitrogen peroxide is further illustrated by the fact that the white and blue compounds differ not only in solubility, but also in smell, the white form being odourless, whilst the blue form has a sharp, pungent smell.

THE additions to the Zoological Society's Gardens during the past week include two Chanting Hawks (*Melierax musicus*) from South Africa, presented by Mr. A. W. Guthrie; a Nonpareil Finch (*Cyanospiza ciris*), an Indigo Bird (*Cyanospiza cyanea*) from North America, presented by Miss Anne Ricardo; a Broad-fronted Crocodile (*Osteolemus tetraspis*) from Nigeria, presented by Mr. C. V. Fox; a Hagenbeck's Mangabey (*Cercocebus hagenbecki*) from the Upper Congo, a Black-handed Spider-Monkey (*Ateles geoffroyi*) from Central America, deposited; eight Mandarin Ducks (*Æx galericulata*) from China, received in exchange.